

MODIS IOT Weekly Report

Mission Operations Days: 2000/218 to 2000/224

August 4, 2000 20:00:00 GMT to August 11, 2000 20:00:00 GMT

Terra Spacecraft and MODIS Instrument Status:

Terra (AM-1) is in Normal Mode

MODIS is in Science Mode

MODIS has an anomaly with the Formatter. See description below.

Blackbody	A Off; B Off	Nominal
Calibration Electronics	A On; B Off	Nominal
Control Processor	A On; B Off	Nominal
Door: Nadir	Unlatched, open	Nominal
Space View	Unlatched, open	Nominal
Solar Diffuser	Unlatched, closed	Nominal
FDDI Formatter	A On; B off	Nominal
FIFO Memory	1, 2, 3 & 4 Off	Due to Formatter Anomaly
Format Processor	A On; B off	Nominal
PC FPA	A On	Nominal
Power Supply:1	On	Nominal
2	Off	Nominal
PV FPAs: VIS	A On	Nominal
NIR	A On	Nominal
SMIR	A On	Nominal
LWIR	A On	Nominal
Radiative Cooler:		
Outgas Heaters	Off	Nominal
LWIR FPA Heater	On	Nominal
SMIR FPA Heater	Off	Nominal
Scan Assembly	A On; B off	Nominal
SDSM	Off	Nominal
SRCA	Off	Nominal
Survival Heaters: PS1	Enabled	Nominal
PS2	Enabled	Nominal
Timing Generator	A On; B Off	Nominal
Flight Software	Rev BD	Nominal
Inhibit Ids Set	31,32	Blackbody & Calibration Electronics
TMONs enabled	66,67	Nominal

This Week's Completed MODIS Activities:

Friday, August 4, 2000

None

Saturday, August 5, 2000

218/00:00:00 ATC Blackbody to 270K
218/00:00:30 ATC Blackbody duty cycle to 33%
218/22:00:00 ATC Blackbody to 315K
218/22:00:30 ATC Blackbody duty cycle to 100%
218/22:06 – 23:00 Anomaly – Formatter resets

Sunday, August 6, 2000

219/03:00 Real-Time – Transition to Standby Mode
219/03:02 Real-Time – Transition to Low Power Mode (Macro 0)

Monday, August 7, 2000

220/12:30 Real-Time – Disable Ground System Blackbody Alarms

Tuesday, August 8, 2000

221/14:20 Real-Time – Timing Generator A On
221/14:24 Real-Time – Scan Assembly A On
221/14:28 Real-Time – Formatter A On
221/14:34 Real-Time – Transition to Low Power Mode (Macro 0)
221/15:18 Real-Time – Cold Stage Outgas Heater On
221/15:58 Real-Time – Intermediate Stage Outgas Heater On
221/16:00 Real-Time – SMIR Itwk/Vdet to 79/190 (launch values)
221/17:55 Real-Time – Outer Stage Outgas Heater On
221/20:05 Real-Time – CS and IS reached 318K

Wednesday, August 9, 2000

None

Thursday, August 10, 2000

223/19:11 Real-Time – Turn off outgas heaters
223/21:23 Real-Time – Turn on Timing Generator A
223/21:24 Real-Time – Turn on Scan Assembly A
223/21:25 Real-Time – Turn on Formatter A
223/21:31 Real-Time – Set Formatter to Upload Mode
223/21:38 Real-Time – Dump 9A(6,13,256,0,1,1)
223/21:41 Real-Time – Long Dump 9B fails
223/21:42 Real-Time – Halt Memory Transfer
223/22:24 Real-Time – Dump 9C (7,1,262145,0,1,1)
223/22:27 Real-Time – Dump 9D (7,1,262147,0,1,1)

223/22:28 Real-Time – Dump 9E (6,32,53760,1,1,1)
223/22:30 Real-Time – Long Dump 9B (7,500,525568,0,1,16)
223/22:37 Real-Time – Formatter upload reset
223/22:40 Real-Time – Dump 9A (6,13,256,0,1,1)

Friday, August 11, 2000

224/01:05 Real-Time – Dump 9E (6,32,53760,1,1,1)
224/01:05 Real-Time – Formatter upload reset
224/01:07 Real-Time – Dump 9A (6,13,256,0,1,1)
224/01:09 Real-Time – Dump 9E (6,32,53760,1,1,1)
224/01:50 Real-Time – Dump 9E (6,32,53760,1,1,1)
224/01:51 Real-Time – Formatter upload reset
224/01:52 Real-Time – Dump 9A (6,13,256,0,1,1)
224/01:53 Real-Time – Dump 9E (6,32,53760,1,1,1)
224/01:54 Real-Time – Formatter upload reset
224/01:56 Real-Time – Dump 9A (6,13,256,0,1,1)
224/01:57 Real-Time – Dump 9E (6,32,53760,1,1,1)
224/01:59 Real-Time – Standard Reset Formatter (to “normal mode”)
224/02:03 Real-Time – Turn Formatter Off
224/14:53:49 Real-Time -- Transition to A-side Science Mode
224/14:56:20 Real-Time -- Turn of FIFO blocks
224/14:57:53 Real-Time -- Formatter Upload Reset

This Week's Scheduled MODIS Activities Not Completed:

Sunday, August 6, 2000

219/05:00:00 ATC Blackbody to 270K
219/05:00:30 ATC Blackbody duty cycle to 33%

Monday, August 7, 2000

220/03:00:00 ATC Blackbody to 290K
220/14:00:?? Real-time – Set Itwk/Vdet to 79/190
220/14:00:?? Real-time – Transition to Standby
220/14:00:?? Real-time – Transition to Low Power
220/14:00:?? Real-time – Turn on Cold Stage
220/14:30:?? Real-time – Turn on Intermediate Stage
220/16:30:?? Real-time – Turn on Outer Stage
220/19:00 Attain 318K

Upcoming MODIS Events:

Upload flight software patches to better detect and track the formatter errors.

Maneuvers:

None

MODIS Anomalies:

Beginning about 6 PM EDT on Saturday, August 5th, the A-side formatter circuitry reset itself repeatedly. Approximately 90 resets were observed during a one hour period and then the formatter stabilized in upload mode. At 11:00pm EDT (August 5, 2000 03:00 GMT), due to conflicting telemetry indicators, MODIS was placed in low power mode with the mirror stopped and survival heaters enabled.

On Tuesday, August 8th, MODIS' timing generator, scan assembly, and formatter were powered on sequentially to isolate the anomaly. The timing generator and scan assembly were turned on successfully. When the formatter was powered on, more errors were observed. However, the formatter had cooled significantly during the time since MODIS was put into low power mode three days prior.

The timing generator, scan assembly, and formatter were powered again on Thursday and a series of memory dumps were performed. On Friday MODIS was transitioned to Science Mode, however, the FIFO memory blocks were turned off. This is considered a safe, stable state. During the next week, memory patches will be installed to better detect and track the formatter errors.

General Instrument Comments:

MODIS is in Science Mode on the A-side with the FIFO memory turned off. The SVD and NAD are both open.

MODIS Telemetry Trends:

Overall, MODIS temperatures had dropped significantly while MODIS was in low power mode. The blackbody temperatures were off-scale and the limits for these mnemonics were disabled. The formatter engine temperatures did reach yellow-low temperature limits at times, but the survival heaters kept the instrument safe from harm. The LWIR cold focal plane temperature saturated low and the SMIR temperature dropped to approximately 77K.

Non-MODIS Significant Events:

None.

Limited Life Item Status:

SRCA 10W Lamp #1: 173.3 of 500 hours

SRCA 10W Lamp #2: 135.9 of 500 hours

SRCA 10W Lamp #3: 145.1 of 500 hours

SRCA 10W Lamp #4: 61.5 of 500 hours

SRCA 1W Lamp #1: 555.8 of 4000 hours

SRCA 1W Lamp #2: 276.3 of 4000 hours

Solar Diffuser Door: 1393 of 3022 Movements

Nadir Aperture Door: 532 of 1316 Movements

Space View Door: 437 of 1316 Movements